

**ABSTRACT**

Physical layer structures and related access schemes for unsynchronized communication networks are provided. Access channel information, preferably including a common

- 5 synchronization code associated with all transceiver stations in a communication network and a cell-specific synchronization code uniquely associated with one of the transceiver stations, is modulated onto at least one set of time-continuous signal components of a communication signal. In order to access the
- 10 communication network, communication terminals search for the access channel information in one or more sets of time-continuous signal components and synchronization parameters are then determined based on a location of the access channel information in the sets of time-continuous signal components.
- 15 Some embodiments of the invention provide for joint frame synchronization and coarse timing synchronization. In further embodiments, the communication signal also includes a scattered pilot channel onto which a portion of the access channel information, preferably the cell-specific synchronization code,
- 20 is modulated. The pilot channels may then be re-used for initial access operations in addition to its conventional uses for such operations as channel estimation.